

No. 734,151.

PATENTED JULY 21, 1903.

L. ABRAHAM.
CONVEYER.

APPLICATION FILED NOV. 20, 1902.

NO MODEL.

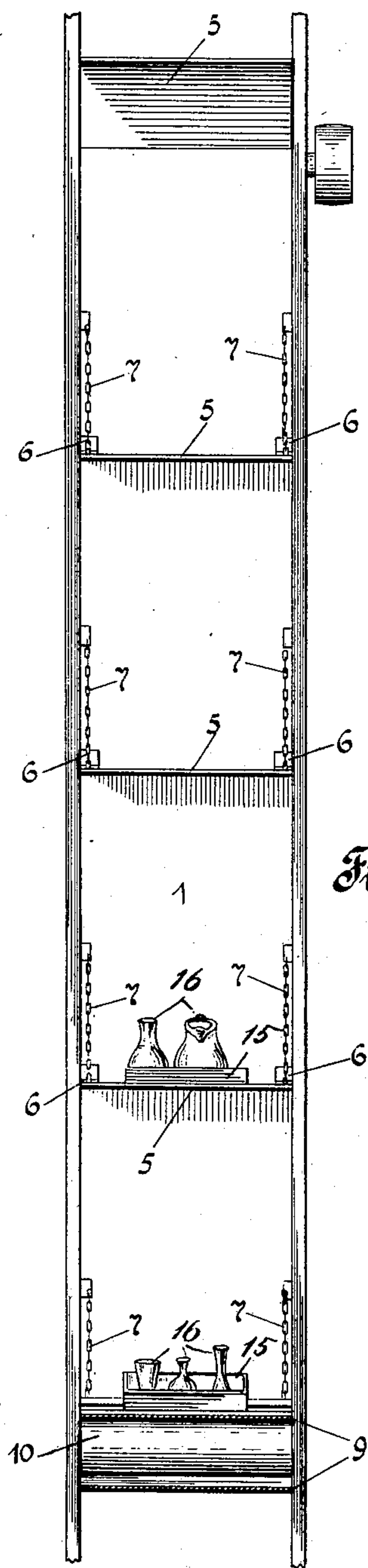


Fig:1

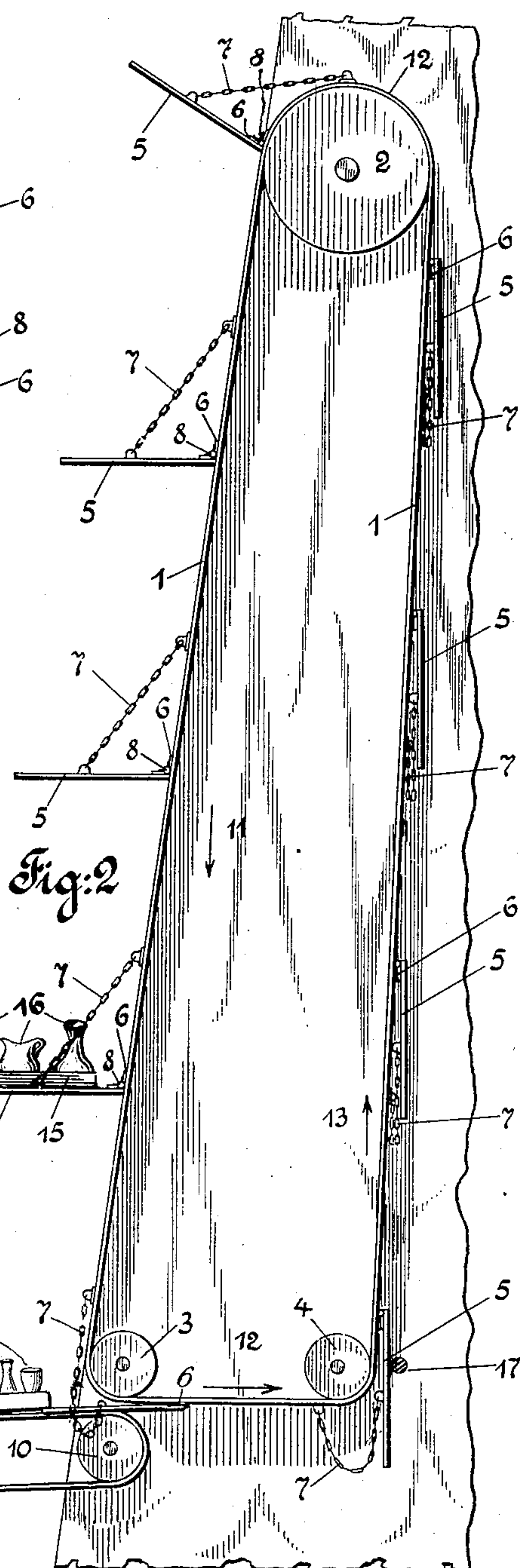
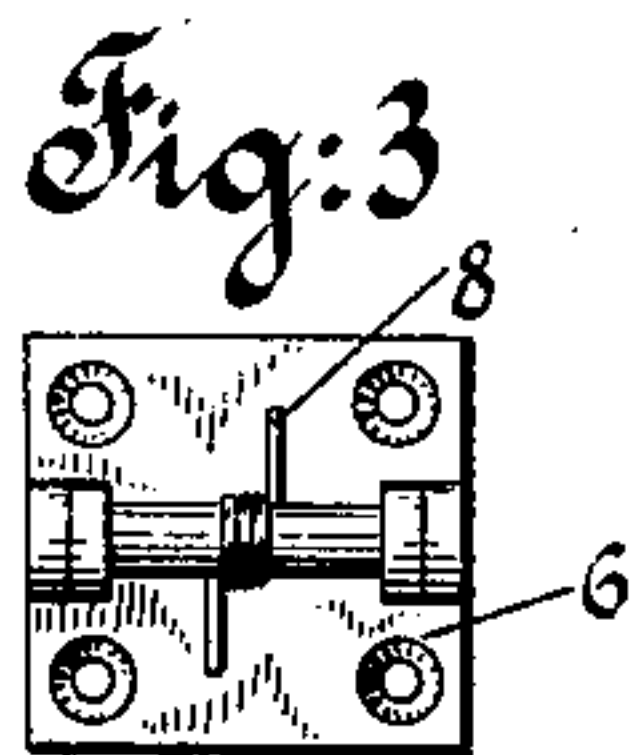


Fig:2

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UNITED STATES PATENT OFFICE.

LAWRENCE ABRAHAM, OF BROOKLYN, NEW YORK.

CONVEYER.

SPECIFICATION forming part of Letters Patent No. 734,151, dated July 21, 1903.

Application filed November 20, 1902. Serial No. 132,070. (No model.)

To all whom it may concern:

Be it known that I, LAWRENCE ABRAHAM, a citizen of the United States, and a resident of the borough of Brooklyn, city of New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Conveyers, of which the following is a specification.

My invention relates to means for conveying goods or other substances from one point to another.

The principal object of my invention is to provide means whereby goods or other substances may be conveyed from a higher to a lower point without change of the position in which they were first placed upon the conveyer. Such means have been found to be particularly needed when it was desired to transfer delicate and fragile articles, and especially a number of said articles together, from an upper floor of a building to a lower floor and at a distance from a point below the original point of deposit on the conveyer.

My invention consists of means for accomplishing the above objects, and also of certain features and details, as herein described and illustrated.

The accompanying drawings illustrate one embodiment of my invention, in which—

Figure 1 is a front view of the conveyer, the transverse carrier being in vertical section. Fig. 2 is a side elevation of the conveyer, the transverse carrier being partly broken away. Figs. 3, 4, and 5 are details of the hinge and spring connection of the shelf to the carrier.

Similar numbers represent like parts in all the figures.

1 is an endless carrier in the form of a belt passing around a pulley 2 and two smaller pulleys 3 and 4, which are substantially horizontal to each other and below the pulley 2.

5 illustrates shelves united by hinges 6 to the outer surface of the carrier-belt 1 and sustained normally in a substantially horizontal position by flexible connections or chains 7 uniting said shelves with the carrier-belt 1. The shelves 5 will tend to drop by gravity, and when the belt 1 is vertical, or substantially so, the shelves will drop, as above stated, to a substantially horizontal position or until they have reached the limit of their fall by the chain or flexible connection 7 becoming taut, the portion of the shelf beyond the belt 1 being suspended by said chain or connection. It will be seen that when the carrier or belt 1 is moving on its downward course and with the under part of the shelves 5 or the side opposite the flexible connection facing said course the shelves will be supported, as above stated. When, however, the carrier 1 begins its transverse movement, the gravity of the shelves will tend to drop them into a vertical position, and when the carrier 1 is on its upward course the gravity of the shelves will tend to close them up against the carrier 1. In passing around the pulley 2 after having been closed or folded against the carrier it has been found desirable to use means besides gravity to assist in opening the shelves 5 from the carrier 1 and to cause said shelves to assume substantially a horizontal position, as above stated, and this is accomplished by means of a spring 8, united to the joint of the hinge 6 and having its outwardly-bearing arms bearing upon the two leaves of said hinge, as shown in Figs. 3, 4, and 5.

9 is a belt or endless carrier surrounding pulley 10, situated under and near pulley 3, and said belt extending in a substantially horizontal direction. The course of the carrier or belt 1 is indicated by the arrows 11, 12, and 13, the arrow 11 indicating the downward course of the carrier 1 and shelves 5, the arrow 12 indicating their transverse course, and the arrow 13 indicating their upward course. The carrier will have a course in the direction of the arrows 14, the course of the upper portion of the belt 9 being in a direction away from the lowest and transverse course 12 of the carrier 1. It will thus be seen that the carrier 9 is directly within or under the downwardly-vertical course of the shelves 5, and said shelves will descend until they rest upon the carrier 9, which forms a temporary bed for said shelves, and that the continued motion of the carrier 1 will draw said shelves respectively in a horizontal or substantially horizontal position away from and beyond carrier 9 and pulley 10 until the outer end of the shelves has passed beyond said carrier and pulley, when the shelves will drop by gravity to a substantially vertical position, all as shown in Fig. 2. Articles placed

upon the shelves 5 will thus be carried down by the carrier 1 until said shelves respectively come in contact with the belt or carrier 9, when the shelves will be drawn out from under said articles in a substantially horizontal position in the manner above described, leaving the articles upon the upper surface of the carrier 9. If no movement be transmitted to said carrier 9, it will act as a bed to receive any articles that may have been upon a shelf that dropped upon said carrier and was withdrawn from the same, as above stated, and if it were desired to remove the articles at this point it would not be necessary for the carrier 9 to be moved and in such a case would simply act as a fixed bed. If, however, the carrier 9 moves in the direction indicated by the arrows, it will convey the articles in a direction away from the carrier 1. The movement of the upper portion of the carrier 9 away from carrier 1 will materially assist in drawing the articles in a substantially horizontal position away from the free end of the shelf 5. By means of the above mechanism the most delicate and fragile goods can be automatically conveyed from one point to a lower and distant point without danger of breaking said goods or articles or injuring their positions. It has been found practicable to deposit a tray or shallow case or box 15, containing a large number of fragile articles 16, which need to be held in a vertical position, without injuring them in the slightest degree. If necessary, open vessels carrying liquids can be conveyed by the conveyer above described without spilling or splashing.

In order to assist gravity in folding the shelves 5 up against the belt or conveyer 1 when the same is on its upward course 13 and where a narrow shaft for the course of said shelves is provided, a cross-bar 17 a little above the pulley 5 and back of the conveyer 1 is used, so that when the conveyer and shelves begin to ascend they will ride past the inner periphery of said cross-bar and will be drawn in by it toward the conveyer 1, as shown in Fig. 2.

I do not limit myself to the precise construction shown nor to the precise construction by which my invention is carried into effect, as numerous other constructions may be employed without departing from my invention or sacrificing its chief advantages.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a conveyer, the combination with a shelf secured to a carrier, and said carrier and shelf having a downward movement, and a movement transverse thereto at the end of said downward movement, and a substantially horizontal bed situated in the downward course of said shelf and on a plane below the transverse course of the carrier, and constructed and arranged to arrest and support said shelf in a substantially horizontal position, whereby it will be caused to slide from such bed in such position.

2. In a conveyer, the combination with a shelf hinged to a carrier, and said carrier and shelf having a downward movement, and a movement transverse thereto at the end of said downward movement, and a substantially horizontal bed situated in the downward course of said shelf and on a plane below the transverse course of the carrier, and constructed and arranged to arrest and support said shelf in a substantially horizontal position, whereby it will be caused to slide from such bed in such position.

3. In combination with an endless movable carrier, and a shelf secured to the same, a substantially horizontal support for said shelf situated in the downward course of said shelf and on a plane below the bottom of the carrier, whereby said shelf will descend upon and be sustained by said support in a substantially horizontal position, and will slide in such position from said support.

4. In combination with an endless movable carrier, and a shelf hinged to the same, a substantially horizontal support for said shelf situated in the downward course of said shelf and on a plane below the bottom of the carrier, whereby said shelf will descend upon and be sustained by said support in a substantially horizontal position, and will slide in such position from said support.

5. In combination with an endless movable belt, and a shelf hinged to the same, a substantially horizontal support for said shelf situated in the downward course of said shelf and on a plane below the bottom of the belt, whereby said shelf will descend upon and be sustained by said support in a substantially horizontal position, and will slide in such position from said support.

6. In a conveyer, the combination with a shelf secured to a carrier, and said carrier and shelf having a downward movement, and a movement transverse thereto at the end of said downward movement, and a second carrier situated in the downward course of said shelf on a substantially horizontal plane below the transverse course of the first-named carrier, and having a course in a direction opposite to that of said carrier, whereby said shelf will descend upon and be supported by said second carrier in a substantially horizontal position, and said carrier and shelf slide in such position away from each other.

7. In a conveyer, the combination with an endless movable carrier and a shelf attached to the same, of a second carrier situated in the downward course of said shelf and on a plane below the bottom of said endless carrier and having a course in the opposite direction from the same, whereby said shelf will descend upon and be supported by said second carrier in a substantially horizontal position, and said carrier and shelf slide in such position away from each other.

8. In a conveyer, the combination with an endless movable carrier and a shelf hinged to the same, of a second carrier situated in

the downward course of said shelf and on a plane below the bottom of said endless carrier and having a course in the opposite direction from the same, whereby said shelf will descend upon and be supported by said second carrier in a substantially horizontal position, and said carrier and shelf slide in such position away from each other.

9. In a conveyer, the combination with a shelf secured to a carrier, and said carrier and shelf having a downward movement, and a movement transverse thereto at the end of said downward movement, and an endless carrier situated in the downward course of said shelf and on a plane below the transverse course of the first-named carrier, and having a substantially horizontal course in a direction opposite to said transverse course, whereby said shelf will descend upon and be supported by said second carrier in a substantially horizontal position, and said carrier and shelf slide in such position away from each other.

10. In combination with an endless movable carrier, having a substantially vertical course and a course transverse thereto, and a shelf secured to the same, of a second endless carrier situated in the downward course of said shelf and on a plane below the transverse course of the first-named carrier, and having a substantially horizontal course in a

direction opposite to said transverse course, whereby said shelf will descend upon and be supported by said second carrier in a substantially horizontal position, and said carrier and shelf slide in such position away from each other.

11. In combination with a carrier having two movements, one of which is transverse to the other, a shelf hinged to said carrier, and a spring tending to bear said shelf outward from the carrier.

12. In combination with a carrier having two movements, one of which is transverse to the other, a shelf hinged to said carrier, and a spring at the junction of said shelf and carrier tending to bear said shelf outward from the carrier.

13. In a conveyer, the combination of a carrier having two courses transverse to each other, and a shelf pivoted to said carrier and means outside of the same and only near the junction of said courses for guiding and holding said shelf toward the carrier.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LAWRENCE ABRAHAM.

Witnesses:

HENRY WILHELM,
JOS. KUNREUTHER.